

TRANSMIT FAST-PATH PROCESSING  
ON TCP/IP OFFLOAD NETWORK INTERFACE DEVICE

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ABSTRACT OF THE DISCLOSURE

A network interface device provides a fast-path that avoids most host TCP and IP protocol processing for most messages. The host retains a fallback slow-path processing capability. In one embodiment, generation of a response to a TCP/IP packet received onto the network interface device is accelerated by determining the TCP and IP source and destination information from the incoming packet, retrieving an appropriate template header, using a finite state machine to fill in the TCP and IP fields in the template header without sequential TCP and IP protocol processing, combining the filled-in template header with a data payload to form a packet, and then outputting the packet from the network interface device by pushing a pointer to the packet onto a transmit queue. A transmit sequencer retrieves the pointer from the transmit queue and causes the corresponding packet to be output from the network interface device.